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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,531	09/29/2003	Chang-Ho Suh	678-1271	1829

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EXAMINER
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GREY, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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06/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/673,531

Applicant(s)

SUH ET AL.

Examiner

Christopher P. Grey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-14 and 15-28 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The *n* subcarriers made reference to in the claim, which are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The description does not disclose or define "*n*", and it is not clear how *m* subcarriers can be grouped into *n* subcarriers if *n* is not clearly defined.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 and 15-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 claims the assignment of null data to subcarriers except the *n* subcarriers, but then contradicts this limitation by further claiming assigning null data to subchannels not selected from the *p* subchannels, where it is understood from the language of the claim that the *n* subcarriers make up the *p* subchannels. It is unclear to the examiner

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whether or not null data is being transmitted, and where the null data is being treated.

The rejection below is based on the preceding 112 rejections, where the examiner is unclear to several limitations claimed.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-14 and 15-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1-14 and 15-28 indicate a method and apparatus for generating a preamble sequence in OFDM communication. However, Claims 1-4 and 15-28 fail to disclose a practical application that provides a useful, concrete, and tangible result including what physical action or change will occur or follow as a result of generating the preamble sequence.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. <sup>14 and 26</sup> Claims 1, <sup>14 and 26</sup>15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants admitted prior art in view of Baum et al. (US 20030026295), hereinafter referred to as Baum.

**Claim 1, 15** The applicants admitted prior art discloses grouping the m subcarriers (page 9, line 8, 256 subcarriers) by n subcarriers (page 9 line 9, where only 200 are used and grouped into channels), where n is less than m (200 is less than 256), so as to generate p subchannels (page 9, line 9, separated into 4 subchannels).

The applicants admitted prior art discloses assigning null data to subcarriers except the n subcarriers assigned to the subchannels (page 9, lines 14-15, where a guard interval consists of null data; page 10 lines 13-20), assigning data of a given sequence to at least one subchannel selected from the p subchannels (page 12, line 20, only one subchannel is used), and thereafter performing IFFT for transforming the data into time domain data (fig 3, IFFT).

The applicants admitted prior art does not specifically disclose assigning null data to subchannels not selected from the p subchannels.

Baum discloses transmitting null data on unused subcarriers (para 0021 and 0023, where a subcarrier is equivalent to a subchannel, where transmitting null

**data on an unused/remaining subcarriers, is equivalent to transmitting null data on unused/remaining subchannels).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the assignment of subchannels as disclosed by the applicants admitted prior art, so as to transmit null data on unused subcarriers as disclosed by Baum. The motivation for this modification is to maintain data integrity and for handling latency while maintaining a synchronous link, where the freed space must be filled with auxiliary information or null data as is known in the art.

**Claim 14, 28**      The applicants admitted prior art discloses wherein all of the subcarriers except the  $n$  subcarriers assigned to the subchannels are subcarriers corresponding to an interference removed component between a DC component and the subcarriers **(fig 3, subcarriers mapped to ALL NULL correspond to an interference removed component between the 0/DC and the subcarriers).**


5.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Grey  
Examiner  
Art Unit 2616

  
6/14/07

  
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